Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies	)	ET Docket No. 92-9

To: The Commission

REPLY COMMENTS OF ASSOCIATION OF AMERICAN RAILROADS

The ASSOCIATION OF AMERICAN RAILROADS ("AAR"), by its attorneys and pursuant to Section 1.45 of the Commission's Rules, hereby submits its Replies to Comments filed by other parties in the above-referenced proceeding.[1] The Comments addressed a Further Notice of Proposed Rule Making ("Further Notice") in which the Federal Communications Commission ("FCC" or "the Commission") proposed to reallocate and rechannelize five bands above 3 GHz to accommodate common carrier and private fixed microwave licensees displaced from the 2 GHz band.[2]

1/ AAR filed Comments on December 11, 1992. The deadline for filing reply comments was extended to January 27, 1993. Order Extending Time for Reply Comments, DA 93-5, released January 7, 1993.

2/ Further Notice of Proposed Rule Making, 7 FCC Rcd 6100 (1992).

I. COMMENTS REVEAL GREAT UNCERTAINTY ABOUT ABILITY OF HIGHER BANDS TO ACCOMMODATE DISPLACED 2 GHz MICROWAVE LICENSEES.

Two general themes emerge from the comments filed in response to the Commission's Further Notice. First, like the 2 GHz band, the bands above 3 GHz already are heavily utilized, particularly in congested metropolitan areas, by existing licensees that have made substantial investments in communications systems specifically designed for operation in those bands. Consequently, existing users claim that making "their" frequencies available to displaced 2 GHz microwave licensees would severely cripple or eliminate their existing operations. Second, the specific rechannelization plan for each targeted band either (a) makes that band undesirable as a relocation band because of interference and other operational problems, or (b) is spectrally inefficient such that few, if any, 2 GHz microwave incumbents could be relocated without precluding growth of existing users' systems.

Taken together, these two themes lead to one inevitable conclusion: The bands above 3 GHz cannot accommodate reliably the estimated 29,000 fixed microwave facilities facing displacement from the 2 GHz band. Indeed, several commenters stated this conclusion in no uncertain terms.[3] While some 2 GHz licensees generally agreed that the specific channelization plan

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3/ See, e.g., Comments of Alcatel at 5; Comments of American Petroleum Institute ("API") at 13 and Comments of Telecommunications Industry Association at 14.

for each higher band is technically acceptable,[4] the overwhelming sentiment by 2 GHz licensees and existing users of the higher bands was that the higher bands simply do not have the capacity to accommodate the displaced 2 GHz licensees.[5]

The inescapable conclusion of the comments directly undercuts the premise of the Commission's decision to reallocate the 2 GHz band for emerging technologies. In the first Notice of Proposed Rule Making ("First Notice") in this proceeding, the Commission targeted the 1850-1990 MHz frequencies because "adequate capacity" in higher bands exists for relocating 2 GHz incumbents.[6] This decision was based directly on a study by the Office of Engineering and Technology ("OET"), which concluded that "it appears that the 4 and 6 GHz bands are capable of fully accommodating the relocation of the 2 GHz incumbents."[7]

4/ See, e.g., Comments of API.

5/ A few commenters weighed in primarily to say that rechannelization of the higher bands is unnecessary or premature because spectrum sharing in the 2 GHz band will eliminate the need to relocate 2 GHz fixed microwave incumbents. While AAR appreciates this optimistic view, the many uncertainties regarding spectrum sharing with various emerging technologies make it essential to ensure that reliable alternative frequencies are available. See Reply Comments of AAR, ET Docket 92-9, filed July 8, 1992, in response to First Notice, at 3-7 (discussing wide range of views on feasibility of sharing 2 GHZ spectrum by fixed microwave licensees and emerging technologies).

6/ Notice of Proposed Rule Making, 7 FCC Rcd 1542 (1992) at paras. 19-20.

7/ "Creating New Technology Bands for Emerging Telecommunications Technology," FCC/OET TS92-1 (January 1992) ("OET Study") at 24, para. 4.4.3.

As AAR has stated throughout this proceeding, its paramount concern is to maintain the integrity and reliability of its member railroads' private microwave communications systems so as to ensure safe, reliable and efficient operation of the nation's railroads. Thus, AAR has supported the proposed reallocation and transition framework only because of the Commission's guarantees that (1) any fixed microwave licensee displaced from the 2 GHz band will have access to alternative frequencies "that are suitable for providing equivalent service with comparable reliability;"[8] and (2) involuntary relocation of 2 GHz microwave licensees will be permitted only if comparable alternative frequencies or systems are available and all relocation costs are paid.[9]

AAR supports the Commission's efforts to fulfill these guarantees by proposing a rechannelization plan aimed at optimizing opportunities for relocating 2 GHz incumbents to higher bands. To this end, the Commission should adopt a plan that guarantees microwave operations equal or superior to existing 2 GHz operations in all aspects of system performance and that accommodates the needs of analog and digital systems. Given the grave uncertainty about capacity in the higher bands,

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8/ Further Notice at para. 2.

9/ First Report and Order and Third Further Notice of Proposed Rule Making ("Order and Notice"), 7 FCC Rcd 6886 (1992) at para. 24. See Comments of AAR, filed January 13, 1993, in response to the Order and Notice.

however, AAR is skeptical whether any rechannelization plan will enable the Commission to fulfill the guarantees to 2 GHz incumbents that are the centerpiece of the overall 2 GHz reallocation plan.

II. EXISTING USERS AND RECHANNELIZATION SCHEMES POSE INTERFERENCE AND SPECTRUM INEFFICIENCY PROBLEMS IN HIGHER BANDS.

A. 4 GHz Band

The Commission's OET study described the 4 GHz common carrier band, along with the 6 GHz private and common carrier bands, as "the three most promising candidate relocation bands."[10] The study concluded that these bands "are capable of fully accommodating the relocation of the 2 GHz incumbents."[11] In addition, the relocation would not impede existing operations in those bands, according to OET. "[T]he 4 and 6 GHz bands appear to be able to support a significant number of additional facilities even after consideration of the 2 GHz facilities," the study stated.[12]

Parties commenting in this proceeding reached a drastically different conclusion. The 4 GHz common carrier band was described, more than any other band and in the most absolute terms, as being unable to accommodate displaced 2 GHz microwave

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10/ OET Study at 17.

11/ OET Study at 24, para. 4.4.3.

12/ Id.

users as contemplated by the Commission. Numerous users of satellite systems in the 4 GHz band claim that the proposed rechannelization would make their current operations "extremely more difficult, if not impossible"[13] and "totally or partially unusable"[14]; aggravate the existing problem of terrestrial interference for 3.9 million home satellite dishes[15] and "totally upset" the current sharing arrangement[16]; and make it "virtually impossible to guarantee any amount of interference reduction by means of frequency offset."[17] Alcatel proposed that unless a portion of the 4 GHz band were made available exclusively for displaced microwave users, "this band is largely unavailable to fixed point-to-point microwave users."[18]

Comments filed in response to the First Notice pointed out that the extensive use of the 4 GHz common carrier band by satellite receive-only earth stations casts great doubt on the feasibility of operating fixed point-to-point operations there.[19] The comments on rechannelization affirm that this band

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13/ Comments of Hughes at 5.

14/ Comments of National Public Radio at 4-6.

15/ Comments of Satellite Broadcasting and Communications Association at 2-3.

16/ Id. at 12.

17/ Comments of GTE at 3.

18/ Comments of Alcatel at A-4.

19/ Comments of AAR, ET Docket 92-9, filed June 8, 1992, at 34-38.

offers little promise as a new home for displaced 2 GHz incumbents.

B. The 6 GHz Band

The comments reveal a similarly dismal projection for the 6 GHz common carrier band, despite the Commission's claim that it is one of the "most promising" relocation bands. The OET Study's estimated relocation capacity, as specified in charts on pages 26 and 27, is overly optimistic at best. Many parties pointed out that the Commission's proposed 30 MHz channel separation for the 6 GHz common carrier band is inconsistent with the existing "T-Plan," making the band extremely spectrum inefficient and increasing interference potential.[20] Existing 6 GHz common carrier licensees claim that the plan to relocate 2 GHz incumbents "will result in rapid and uneconomic depletion of limited resources for common carriage" and that some of the 6 GHz band must be reserved exclusively for common carrier use.[21]

Even if the proposed rechannelization were more spectrum efficient, the 6 GHz band already is heavily congested, particularly in metropolitan areas.[22] This is especially

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20/ Comments of Bell Atlantic at 3-4; Comments of National Spectrum Managers Association at 7-8; Comments of Comsearch at 10; Comments of United States Telephone Association at 3; Comments of GTE at 5-6 and Comments of EMI at 4-5.

21/ Comments of Pacific Telesis at 4-6.

22/ Comments of Alcatel at A-4 and Comments of Associated PCN at 5.

troubling because it is expected that PCS will be deployed primarily in major metropolitan areas and that, given limited 2 GHz spectrum in urban centers, spectrum sharing will not be possible.[23] Thus, 2 GHz microwave incumbents will be most likely to be displaced precisely in the areas where the proposed relocation frequencies are the most crowded. The railroads take little comfort in the fact that this is among the "most promising" scenarios they face in relocating from the 2 GHz band.

C. The 10 GHz and 11 GHz Bands

As the Commission anticipated in the First Notice, the bands above 6 GHz, even if rechannelized, have limited potential as relocation bands because the path lengths are too short for most 2 GHz facilities.[24] The comments reiterated that the 10 and 11 GHz bands could be used only in the few instances where short-range hops are adequate.[25]

Parties raised other problems with these bands as well. Like the 6 GHz common carrier band, the 11 GHz common carrier band already is crowded in metropolitan areas.[26] In addition, the proposed rechannelization scheme poses inefficiency and

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23/ See, e.g., Comments of American Personal Communications, ET Docket 92-9, filed January 13, 1993.

24/ First Notice at para. 20. See also OET Study at 15-17.

25/ Comments of API at 12.

26/ Comments of Associated PCN at 5.

interference problems.[27]

Regarding the 10 GHz band, parties objected to eliminating the existing allocation for common carrier point-to-multipoint service, saying the service will be stifled.[28] It is premature to eliminate the allocation for point-to-multipoint service given that the 10 GHz band may not be needed for displaced 2 GHz licensees because of the higher band's short paths.[29] On the other hand, parties object to the Commission's proposed grandfathering of existing 10 GHz point-to-multipoint users. According to Comsearch, grandfathering these users creates problems because the omnidirectional nature of their systems makes spectrum sharing with point-to-point systems difficult.[30]

III. THE COMMISSION SHOULD AGGRESSIVELY SEEK ACCESS TO FEDERAL GOVERNMENT SPECTRUM AND WORK WITH NTIA TO ESTABLISH RELOCATION PROCEDURES FOR DISPLACED 2 GHz LICENSEES.

The myriad problems with the relocation bands the Commission proposed makes it all the more urgent that the Commission aggressively seek access to underutilized federal government

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27/ Comments of Pacific Telesis at 2-6; Comments of National Spectrum Managers Association at 3 and Comments of United States Telephone Association at 4.

28/ Comments of SR Telecom at 7.

29/ Id. at 8-9.

30/ Comments of Comsearch at 11-12.

spectrum. If PCS-fixed microwave spectrum sharing proves infeasible, and the higher bands offer extremely limited capacity, liberated federal government spectrum may be the only hope for relocating microwave incumbents in order to make way for emerging technologies. The 1710-1850 MHz federal band offers significantly greater potential as a relocation band than any of the higher bands proposed by the Commission because it already is allocated for fixed microwave use and is technically more similar to the adjacent commercial 2 GHz band.[31] The Commission also should seek access to 3.6-3.7 GHz federal frequencies, which will help meet 2 GHz incumbents' need for longer paths.[32]

AAR generally supports the initiative of American Personal Communications in formulating a specific procedure for gaining access to federal government spectrum.[33] The Commission, in coordination with the National Telecommunications and Information Administration, immediately should propose a procedure so as to avoid further delay in making federal spectrum available.

IV. CONCLUSION

By trying to accommodate 2 GHz fixed microwave users in order to make room for emerging technologies, the Commission has

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31/ See "Petition to Suspend Proceeding," ET Docket 92-9, filed April 10, 1992.

32/ Comments of API at 13.

33/ Comments of American Personal Communications at 4-5.

imposed on a third group of users -- licensees in bands above 3 GHz. The comments in this proceeding make clear not only that these bands have insufficient capacity to accommodate some 29,000 new facilities, but that the proposed rechannelization plan would severely cripple existing operations. As one commenter put it, with the proposed rechannelization plan, "the Commission would be trading one set of problems for another."[34]

Whatever problems the specific rechannelization plan poses, it remains incumbent upon the Commission to fulfill its commitment not to displace any 2 GHz microwave licensee until it is guaranteed relocation to a comparable alternative. The comments resoundingly affirmed that the 4 and 6 GHz bands, which the Commission claims can accommodate all 2 GHz displaced licensees, actually can accommodate few without significant problems to existing users. If these bands do not provide relocation capacity, the Commission must find other relocation alternatives, such as federal government frequencies, before it can displace fixed microwave licensees from the 2 GHz band. Without adequate relocation spectrum, the centerpiece of the

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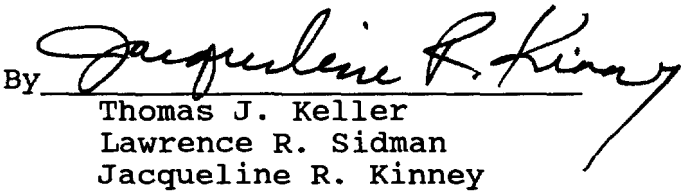
34/ Comments of Associated PCN at 7.

Commission's plan to reallocate the 2 GHz band for emerging technologies remains in question.

Respectfully submitted,

THE ASSOCIATION OF AMERICAN RAILROADS

By 

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January 27, 1993

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CERTIFICATE OF SERVICE

I, Jaime Y.W. Bierds, a secretary for the law firm Verner, Liipfert, Bernhard, McPherson and Hand, Chartered, do hereby certify that a true and correct copy of the foregoing "Reply Comments of Association of American Railroads" was delivered by hand, this 27th day of January, 1993, to the following:

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